

Why Do Saudi High Schools' Graduates Enroll in the Colleges of Technology: A Case Study?

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Abstract

The paper aims at elaborating a strategy regarding students' admission at the colleges of technology in the western region of Saudi Arabia. Purposely, the study surveys the opinion of the students attending the Jeddah College of Technology (J.C.T) and reports on seven socio-economic factors, specifically, the *J.C.T. evaluation system*, the *high school G.P.A.*, the *training period*, the *trainee "gut feel"*, the *scholarship*, the *professional project at graduation* and the *family financial support*. A proportionate stratified random sample of 340 students has been drawn and asked to rate the influence of each factor upon their decision making prior enrolling the J.C.T. The sample has managed students who emanate from 11 sections (sub-strata) and four independent Depts., *Management & Tourism*, *Mechanical Technology*, *Electrical Technology* and *Civil & Architecture*. As we seek to ascertain different factors weights on the students' decision making, the study has considered three major pooling schemes (strata), i) *as per* Depts., ii) *as per* seniority at the J.C.T, iii) and, *as per* the living location. For the pooling methods, one another, we investigated the correlation between the students' decision making to enroll at the J.C.T. and each one of the study factors as cited beforehand. The Chi-square test is used to assess such a categorical association. Finally, a formal method was devised to determine the factors prevalence based on the Chi-square significance level and the number of the pooling schemes wherein the test has proven significant at 5% of significance level. The research findings have showed that the "high school G.P.A" and the "J.C.T evaluation system" factors are the most influential, orderly.

Keywords: chi-square test, decision making models, significance level, vocational education and training

1. Introduction

For decades, much research and development have been achieved to promote the secondary and the tertiary Vocational Education and Training (VET) sectors (Geoffrey & Jin, 1997; Nevriye & Azçayır, 2009; Martin, 2012). The issue has notably gained special concern owing to the drastic change in the national labor work policies as well as the heavy financial funds being accredited to the VET and its auxiliary activities. Different public and private interveners have contributed to enhance and/or work out new curriculums which comply with the ever challenging needs of instructing proficient manpower for the industry, the trade and the service sectors. Accordingly, both the tertiary and the secondary VET sectors have expended and liberalized consistently at a speedy pace.

In Saudi Arabia, the Technical and Vocational Training Corporation (T.V.T.C) is the governmental organization which has managed the secondary and the tertiary VET sectors since 1980. The secondary VET programs are taught by the "industrial high schools" and carry on seven training terms (2½ years), however, the tertiary VET programs are followed up in the "colleges of technology" and last six terms (2 years). The T.V.T.C totals 113 institutions; 63 industrial high schools and 50 colleges of technology. In 2011/2012, the T.V.T.C has administrated 38 specialties in the tertiary sector accounting for a population of 39328 males and 1269 females and an average teachers/students ratio of 1:14.

For the 2011/2012 academic year, the T.V.T.C has been allocated a governmental expenditure budget which amounts to 1278.744 Million (USD) (exceeding the 2010/2011 and the 2009/2010 budgets by 4% and 8.11 %, respectively). According to the Saudi Central Department of Statistics & Information

(<http://www.cdsi.gov.sa/english/>), the spending *per* student for the academic year 2011/2012 raised at 4558 USD as for the general education sectors (both public and private), whereas, the expenditure *per* student with regard to the governmental and private VET sectors has attained 6073 USD, that is, 25% excess.

Worldwide, the public expenditure on the VET sectors has also followed the same upward trend (e.g., O.C.D.E., North America, China, etc.). Yet, for some developed countries, the tendency was less acute due to the heavy involvement of the private sector in financing the general and the VET programs. Table 1 shows the total public expenditure *per* student in the tertiary education sector (public and private) as a percentage of the G.D.P *per* capita (World Bank source).

To date, much literature has been carried out regarding the students' decision making process as to the enrollment in the tertiary general and VET institutions (Fernandez, 2010). To some extent, the process proved intricate because of the multifaceted aspect of the subject. This is further impeded by virtue of the prompt pace at which the policies and the education & training programs change and update to meet national and international market standards.

Table 1. 2005-2009 public expenditure *per* student in the tertiary public and private education sectors (<http://data.worldbank.org/>)

Country	Year					Mean	
	2005	2006	2007	2008	2009	2005-2008	Std. Dev. 2005-2008
New Zealand	25.16	25.91	28.09	28.25	-	26.85	1.55
Hong Kong	59.70	57.20	38.47	28.62	-	46.00	14.97
Malaysia	-	60.72	50.28	34.40	60.72	48.47	13.25
U.K	31.62	28.76	24.33	22.20	-	26.73	4.25
North America	23.07	24.96	21.71	21.15	-	22.72	1.70
Korea, Rep	8.68	9.51	9.04	10.14	-	9.34	0.63
Tunisia	50.13	48.62	49.82	46.14	-	48.68	1.81
Norway	49.10	44.85	47.25	46.80	-	47.00	1.74
O.E.C.D.	25.16	26.46	25.07	26.19	-	25.72	0.71
Finland	34.37	33.36	31.65	32.46	-	32.96	1.17
France	34.47	34.61	36.07	37.00	-	35.54	1.21
Iran	23.50	30.29	27.92	20.84	-	25.64	4.26
Spain	22.67	23.42	25.07	27.26	-	24.61	2.03
Australia	21.50	20.57	20.21	19.85	-	20.53	0.71
Denmark	55.50	53.73	53.64	52.14	-	53.75	1.37

Basically, socio-economic, cultural and psychosocial-emotional factors are major key issues which shape the students' choices; however, with the arrival of the worldwide economic crisis, students have considered the economic rationalism ahead as to their decision making to enroll at the VET programs (Peter & Marshall, 1996). Even though much work has dealt with the decision making models, yet, a little consensus has been achieved (Davies, 2003). Some studies (Le Claire, 1988; Choy et al., 2000; McInnes et al., 2000) describe the students' decision-making behavior as a rational and linear process with almost stable features, others (Bloomer & Hodgkinson, 1997; Tyler, 1998; Laura, 2000), however, consider the process as non rational with no stable features. In the literature, three groups of the educational conceptual models for the students' decision making process have been considered, i) economic/instrumental rationality, ii) structuralist models, ii) and, hybrid models.

In the economic/instrumental rationality models, the students' decision making process is perceived as tributary of four precepts i) profit/utility maximisation, ii) self-interest, iii) information collection, iv) and/or, rationalism. And, the decision-making process is considered to be a rational process of collecting information and weighing

up of the cost/benefits ratio. Foskett et al. (2004) argued that the major deficiency of such a model is due to the returns from the education process which takes a long time to build up. Also, the payoff from the education/training is not financial, solely, i.e., friendly work environment, school prestige, etc.

In the structuralist model (Gambetta, 1987), the decision making process is viewed as a composite of institutional, economic and/or cultural constraints on the students/people over which they virtually have no control. Hence, the education and the career decision making experience extraneous forces beyond the individual's sphere of self determination. Partly, such restraints may come from the individual background (e.g., ethnicity, gender, culture, family, etc.), the education, the training policies (e.g., public, private) and/or the economic conjunctures (e.g., labour opportunities, etc.). The structuralist models can also cope with the emotional and psychological factors. In Roberts (Roberts, 1984), the growing prevalence of the structural factors in modeling education and career development has been discussed. Bourdieu (Bourdieu & Passeron, 1977) introduced the concept of 'cultural capital' to explain the role of education in social reproduction, especially, in relation with the behavioral attitude *vis-à-vis* different education and training programs (Hodkinson et al., 1996; Foskett & Hesketh, 1997; Ball & Macrae, 2000). Despite of the inherent potential of the structuralist models, they still fail to explain the effects of the economic imperatives and instrumental attitudes in decision making (Foskett et al., 2004).

The hybrid model for the students' decision making process was devised by Hodkinson et al. (1996) and it revolves around the theory of pragmatic rationality which assumes that the career/education institution choice is a rational process that is shaped by a realistic perception of opportunities and the individual personality. Basically, the pragmatic rational decision making is founded on three concepts (Reay, 2002), i) the decision-making is part of a wider choice of lifestyle, ii) the decision-making is part of an ongoing life course, iii) and, the decision making evolves through the interaction with others. Accordingly, the decision-making process is not sequentially linear, even though, some stages could be recognized. Also, the people/students personality and the subjective judgment in the choice process have been given high emphasis. Despite the hybrid models decline the economic/instrumental rationality models of decision making, they assume that people/students' choice has some elements of rationality within it (Hodkinson et al., 1996). In Hodkinson et al. (1996), a hybrid model of career decision making has been discussed. It comprises three interacting parts, i) the pragmatic rational decision making, ii) the social interaction, iii) and the chance outcomes that makes up the life course.

The study adheres to the hybrid conceptualization and it considers seven socio-economic factors as it has been highlighted earlier. The objective is to demonstrate the hypothetical association between each factor and the students' decision making to join up the J.C.T. To that end, the Chi-square test is performed according to different pooling schemes (i.e., pooling *as per* Depts., seniority and the living place).

The following sections are structured as it follows. Section 2 lies out the study experimental frame and describes preliminary data survey. Section 3 discusses the research findings *a propos* the Chi-square test in association with each students' pooling scheme. Section 4 sets forth a formal method which assesses the prevalence of each factor on the students' decision making. Finally, important findings and recommendations coming out the study work are summarized.

2. Method and Data Sources

The study targets a population of 2359 students who attended the (2011/2012) J.C.T six terms program. A questionnaire-based approach has been designed to survey the students' decision making. The students' responses are viewed as an ordinal variable which has been decreasingly rated according to the five-point Likert scale, i.e., *totally agree*, *mostly agree*, *neutral*, *mostly disagree*, and *totally disagree*.

For the sampling method, a *Proportionate Stratified Random Sampling* technique (PSRS) has been considered because of its superiority over traditional sampling methods (e.g., systematic and random sampling, etc.). The PSRS guarantees a rational and balanced representation of the students' population as well as a better accuracy of the population estimates (Montgomery, 2004). The study has disregarded new coming students (term I students) because of their unfamiliarity with the socio-professional environment of the J.C.T. Similarly, students in the terminal level (term VI) did not take part of the survey because of the internship trainings.

Hereafter, M. & T would stand for the *Management & Tourism* Dept., M.T for the *Mechanical Technology* Dept., E.T for the *Electrical Technology* Dept. and, C. & A. for the *Civil & Architecture* Dept. Table 2 enlists the student's counts *as per* Depts. and program terms.

Table 2. Proportionate stratified random sampling as regards the students' program terms and Depts.

Proportionate stratified random sample						
		<i>M & T</i>	<i>M.T</i>	<i>E. T</i>	<i>C & A</i>	
		<i>Dept.</i>	<i>Dept.</i>	<i>Dept.</i>	<i>Dept.</i>	
Program Terms	Term II	42	39	14	19	114
	Term III	30	26	10	5	71
	Term IV	24	24	15	8	71
	Term V	25	29	17	13	84
	Stratum size (Dept.)	121	118	56	45	
Sample size		340				

The data survey indicates that among the respondents 42.0% are 18 to 20 years and 57.6% are 20 years old and more. Only 9.4% of the students being sampled live outside the Jeddah city. 64.0% of the students enrolling at the J.C.T come from general secondary schools and 18.2% originate from industrial high schools. The remaining proportion of the students comes from fields such as theology, management and commercial. Despite of the secondary school origin (general or vocational), the students' G.P.A(s) account for 20.3% scoring 60/100 to 75/100, 55%, 75/100 to 85/100 and, 22.3%, having G.P.A(s) 85/100 to 95/100. Only 0.6% of the students enrolling at the J.C.T have G.P.A(s) above 95/100.

As regards the students' families income, five salary classes can be distinguished, that is, 17.0% of the students' families income is less than 3000SR (800 USD), 25.9% have incomes 3000SR (800 USD) to 6000SR (1600 USD), 19.1%, 6000SR (1600 USD) to 10000SR (2666 USD), 24.4% 10000SR (2666 USD) to 15000SR (4000 USD) and 11.1% of the families income exceeds 15000SR (4000 USD). Given the 2011/2012 middle class economic index of 2400USD, nearly 60% of the students who attended the J.C.T programs are issued from social middle class families.

3. Data Analysis and Research Findings

In this work, the Chi-square test has been employed to ascertain the independency/association between the categorical variables, i.e., whether there exists an association between the study factors and the students' decision making to enroll at the J.C.T. The null hypothesis (H_0), set forth, assumes that factors are not correlated with the students' decision making meaning they are statistically independent. The decision of fail to reject or reject the null hypothesis would depend on the estimate of the p-value. Given the 5% of significance level, if the p-value is greater than (100-95)%, we prognosticate the test is insignificant (statistically, we proved nothing since we fail to reject (H_0)). Otherwise, we accept the alternative hypothesis (H_1) telling that, statistically, there exists evidence of the cause-effect hypothesis. The Chi-square statistical analysis is carried out using the Minitab™ 14 software.

3.1 Students Data Survey as Per Departments at the J.C.T.

Presently, students are grouped in four Depts. (four strata). Table 2 shows the proportion of the sampled students being assigned to each Dept. Because of the safeguard Chi-square assumption (the expected values must be greater than 5), the students' count of "totally agree" and "mostly agree" responses were toted up and restated "agree". Likewise; the students' count for the "totally disagree" and "mostly disagree" responses were toted up and restated "disagrees". Note that this assumption holds for the pooling *as per* Depts. scheme, solely.

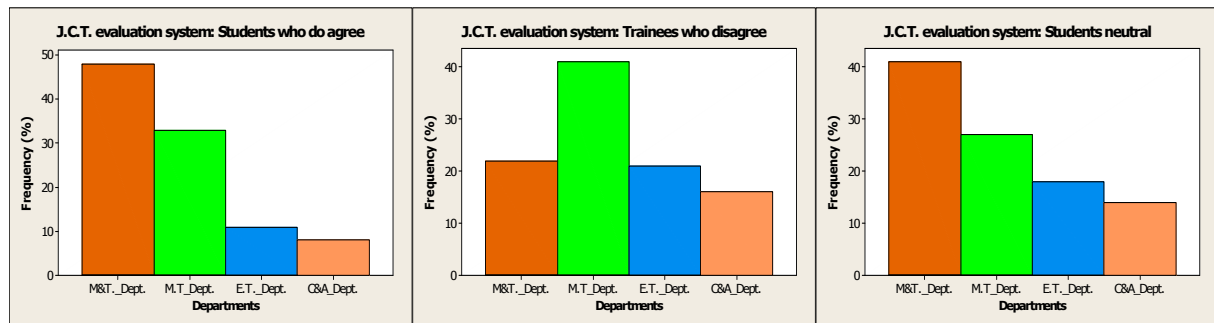


Figure 1. Students' responses frequencies regarding the "J.C.T. evaluation system" factor

Appendix A (a) shows the count and the percent responses of the students as for the "J.C.T evaluation system" factor. Figure 1 depicts the data histogram indicating that the proportion of the M.&T. Dept.' students responses follows a concave pattern as we move from the "agree" through "neutral" via "disagree" responses. However, the trend is flat convex as regards all remaining Depts. Likewise; the Appendix A (b) displays the count and the percent responses regarding the "high school G.P.A." factor. When tracking the "agree", "disagree" and "neutral" responses, sequentially, it is shown the proportion of the M&T and C&A Depts.' students follows rather a concave pattern. And, the change as to the M.T. and the E.T. Depts. patterns a convex curve (see Figure 2).

At 5% of significance level, the p-value equals 0.001 for both the "J.C.T evaluation system" and the "high school G.P.A" factors associations (note, with regard to the "high school G.P.A" factor, one cell has expected counts of 4.820 contributing 0.029 to the total Chi-square of 23.100 which is statistically tolerable). As a result, the students' decision making to join up the J.C.T is strongly associated with both factors.

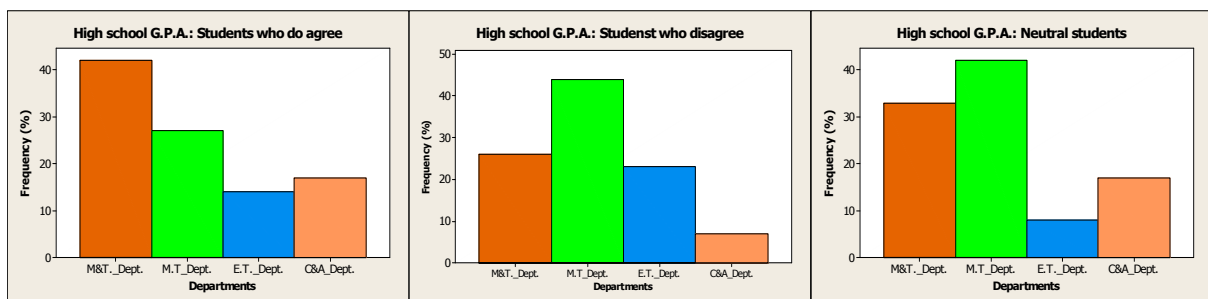


Figure 2. Students' responses frequencies regarding the "high school G.P.A" factor

Appendix A(c) and A(g) show the count and the proportion of the students' responses regarding the "training period" and the "family financial support" factors. The Chi-square p-values equal 0.099 and 0.082, respectively suggesting fair association at 5% of significance level between the students' decision making to join up the J.C.T and the factors "training period" and "family financial support" factors. The test on the association of the remaining factors, i.e., "trainee gut feel", "scholarship" and "professional project", was found marginal ($0.1 < p < 1$). Table 3 shows the factors association Chi-squares as well as the corresponding p-values.

Table 3. Chi-square and p-values of the factors association according to the pooling schemes

Chi-square test as per pooling scheme		Factors						
		J.C.T evaluation system	High school G.P.A.	Training period	Trainee “gut feel”	Scholarship	Prof. project at graduation	Family financial support
Pooling as per	p-value	0.001***	0.001***	0.099 ^(F)	0.866 ^(M)	0.834 ^(M)	0.743 ^(M)	0.082 ^(F)
Departments	Chi-square	23.079	23.100 [°]	10.665	2.525 [°]	2.794	3.510	11.212
Pooling as per	p-value	0.006**	0.066 ^(F)	0.534 ^(M)	0.535 ^(M)	0.003**	0.498 ^(M)	0.004**
seniority	Chi-square	14.380	8.810	3.141	3.140 [°]	16.358	3.368	15.191
Pooling as per	p-value	0.927 ^(M)	0.000***	0.088 ^(F)	0.685 ^(M)	0.747 ^(M)	0.642 ^(M)	0.141 ^(M)
living location	Chi-square	0.882	22.791	8.107	2.276 [°]	1.941	2.512	6.900

Cell with expected count < 5; ^(M) Marg. Sign. ($0.10 \leq p \leq 1$); ^(F) Fair Sign. ($0.05 \leq p \leq 0.10$); * Good Sign. ($0.01 \leq p \leq 0.05$); ** High Sign. ($0.001 \leq p \leq 0.01$); *** Excellent Sign. ($p \leq 0.001$).

3.2 Students Data Survey as Per Seniority at the J.C.T.

Currently, the students are pooled according to their seniority and two strata are considered, *junior* (students enrolling in terms II & III) and *elder* (students enrolling in terms IV & V). Henceforth, the students' responses are decreasingly ordered, totally agree, mostly agree, neutral, mostly disagree and totally disagree.

Appendix B (a), B(e) and B(g) show the count and the percentage of the students' responses for the “J.C.T evaluation system”, “scholarship” and the “family financial support” factors, respectively. The corresponding Chi-squares' p-values equal 0.006, 0.003 and 0.004, respectively, pointing out high significances ($1\% \leq p \leq 1\%$) at 5% level. The students' decision making to join up the J.C.T. and each of these factors are strongly correlated.

Annex B(b) shows the count of the students' responses as regards the “high school G.P.A” factor. The related Chi-square test' p-value equals 0.066 (approximately 5%) showing only fair significance at 5% level. So, there exists a statistical association between the students' decision making to join up the J.C.T and the “high school G.P.A” factor.

The Chi-square tests corresponding to the “training gut feel” and the “professional project at graduation” factors are found irrelevant at 5% level. Table 3 shows the p-values and the association Chi-squares for each factor.

3.3 Students Data Survey as Per Living Location

In this section, pooling is *as per* living location and two strata are considered, i.e., students living *inside the Jeddah city* and those living *outside the Jeddah city*.

In Appendix C(b) the count and the percent of the students' responses for the “high school G.P.A” factor are given. The proportion of the students who live inside the Jeddah city and responding in sequence, totally agree, mostly agree, neutral, mostly disagree and totally disagree, shows rather a negative slope and the tendency is in a ‘saw tooth’ shape with regard to the students living outside the Jeddah city. At 5% level, the p-value equals 0.000 indicating excellent significance of the association Chi-square test. To that end, the “high school G.P.A” factor is strongly correlated with the students' decision making to enroll at the J.C.T.

Appendix C(c) lays out the count and the percentage of the students' responses as for the “training period” factor. For the students' responses, in sequence, totally agree, mostly agree, neutral, mostly disagree and totally disagree, the proportion of the students living inside the Jeddah city follows rather a convex pattern, however, the proportion variation of the students' responses living outside the Jeddah city averagely points out an up-down trend. At 5% of significance level, the p-value equals 0.088 suggesting fair significance of the corresponding Chi-square test. Hence, at 95% of C.I, the “training period” factor and the students' decision making to join up the J.C.T are fairly correlated.

The association Chi-square tests regarding the remaining factors, namely, the “J.C.T evaluation system”,

“training gut feel”, “scholarship”, “professional project at graduation” and “family financial support” are insignificant at 5% level. Table 3 shows the Chi-squares and the corresponding p-values for each factor association.

4. Factors Prevalence and Ranking Method

To this point, we have investigated correlates of the study factors one another and the students’ decision making to enroll at the J.C.T using three pooling schemes (*as per* Depts., seniority and living location). Because each factor/decision making association may prove significant for one scheme and insignificant for another, moreover, at 5% of significance level, the association Chi-square value may locate in either way; marginal ($10\% \leq p$), fair ($5\% \leq p \leq 10\%$), good ($1\% \leq p \leq 5\%$), high ($1\% \leq p \leq 1\%$) or excellent ($p \leq 1\%$), a formal method has been devised to assign a global weight to each factor association, properly. The method considers, i) the pooling scheme, ii) the significance level of the association Chi-square test (p-value level), iii) and finally, the number of schemes wherein the Chi-square test of the factor/decision making association are found significant.

Table 4. Global factors ranking

		Factors						
		<i>J.C.T. evaluation system</i>	<i>High school G.P.A.</i>	<i>Training period</i>	<i>Trainee’ gut feel’</i>	<i>Scholarship</i>	<i>Professional project at graduation</i>	<i>Family financial support</i>
Weight as per Chi-square significance	Pooling as per Depts.	4	4	1	-	-	-	1
	Pooling as per seniority	3	1	-	-	3	-	3
	Pooling as per living location	-	4	1	-	-	-	-
	Weight as per pooling scheme	3+2	3+1	-	-	2	-	2
Grand weight		12	13	2	-	5	-	6
Ranking		2 nd	1 st	5 th	Dull	4 th	Dull	3 rd

Because the students at the J.C.T were formerly administrated into Depts. and sections, the pooling scheme “*as per* Depts.” has been given the highest importance. It is seconded by the “seniority” then the “living location” scheme. For the pooling scheme weighing, the method considers factors associations having good, high or excellent Chi-square significance levels, solely. Thus, when the pooling scheme is considered, a significant Chi-square factor/decision making association that is good, high or excellent, is assigned 3 marks weight if pooling is *as per* Depts., 2 marks weight if pooling is *as per* seniority and, 1 mark weight if pooling is *as per* living location. Apart from the pooling scheme, each factor association has been assigned an extra weight based on the association Chi-square significance level, i) a 4 marks is meant for a factor association having an excellent Chi-square significance level, ii) 3 marks if high significance level, iii) 2 marks if good significance level, iv) 1 mark for fair significance level, v) and, 0 mark weight whenever the associated Chi-square test significance is merely marginal. Table 4 displays the grand weight of each factor as well as its prevalence/ranking. Here, a factor ranked 1st is considered the most important regarding the students’ decision making to join up the J.C.T and so forth. For instance, the study findings appoints the “high school G.P.A” factor as being the most influential factor since it has been allotted the highest grand weight of 13. This proceeds by toting; (3+1) marks weight (i.e., the Chi-square level of the G.P.A/decision making association was excellent whereas the pooling is *as per* Depts. and living location), (4+1+4) marks weight (i.e., the Chi-square significance level of the G.P.A/decision making association is excellent, fair and excellent when pooling is *as per* Depts., seniority and living location, respectively).

5. Concluding Remarks

The paper has addressed correlation regarding seven socio-economic factors and the decision making of the Saudi students enrolling at the J.C.T in 2011/2012. Three students' pooling schemes have been considered to better assess the factors prevalence. The study has underscored the following findings,

- 1) Almost 78% of the students surveyed have a high school G.P.A 75/100 to 95/100. Only 0.6% of the students attending the J.C.T. programs have G.P.A(s) higher than 95/100. To some extent, this is revealing of the middling fulfillment of the students at the J.C.T.
- 2) Only 18% of the students at the J.C.T. are issued from secondary industrial schools indicating that the majority of the students originate from general secondary schools with already a little professional background. It is highly recommended to reverse the trend so that more admissions from the industrial schools could be done henceforward.
- 3) 62% of the students enrolling the J.C.T do emanate from social middle class families.
- 4) The study findings show that the "high school G.P.A" factor was the upmost influential factor on the students' decision making to join up the J.C.T. The corresponding association Chi-square test is highly significant regardless of the students' pooling schemes one another. To that end, it is likely that students have chosen the J.C.T because their high school' G.P.A(s) did not concede them to register in universities. The "J.C.T. evaluation system" and the "family financial support" factors came second and third, orderly. And, the prevalence of the "scholarship" and the "Training period" factors are found irrelevant.
- 5) According to the study findings, the "trainee gut feel" and the "professional project at graduation" factors did not enter in play as for the students' decision making regardless of the pooling scheme. This corroborates the empathic lack of professional profiles of students enrolling at the J.C.T.

The study has stressed the need of amending the admission criteria as well as the procedural rules which have been implemented to date at the J.C.T. Even though, the J.C.T is the second most important college on the national scale (first in the western region), still there is a need to broaden the investigation so that others colleges of technology having similar/dissimilar cultural, socio-economic and professional background could be reached for sake of assessment and benchmarking.

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Appendix A

Students' responses count *as per* Depts.

(a) J.C.T. Evaluation System				
J.C.T. Join up		Agree	Disagree	Neutral
		Count (%)	Count (%)	Count (%)
	M & T Dept.	59(48)	33(22)	27(41)
	M.T. Dept.	40(33)	60(41)	18(27)
	E.T. Dept.	14(11)	30(21)	12(18)
	C & A Dept.	10(8)	22(16)	12(14)
(b) High school G.P.A.				
J.C.T. Join up		Agree	Disagree	Neutral
		Count (%)	Count (%)	Count (%)
	M & T Dept.	77(42)	31(26)	12(33)
	M.T. Dept.	49(27)	52(44)	15(42)
	E.T. Dept.	25(14)	27(23)	3(8)
	C & A Dept.	31(17)	8(7)	6(17)
(c) Training period				
J.C.T. Join up		Agree	Disagree	Neutral
		Count	Count	Count
	M & T Dept.	74	30	15
	M.T. Dept.	61	41	16
	E.T. Dept.	27	24	5
	C & A Dept.	17	19	8
(d) Trainee 'gut feel'				
J.C.T. Join up		Agree	Disagree	Neutral
		Count	Count	Count
	M & T Dept.	89	13	19
	M.T. Dept.	88	13	15
	E.T. Dept.	39	9	8
	C & A Dept.	33	3	7
(e) Scholarship				
J.C.T. Join up		Agree	Disagree	Neutral
		Count	Count	Count
	M & T Dept.	48	47	26
	M.T. Dept.	41	36	40
	E.T. Dept.	17	23	15
	C & A Dept.	15	17	12
(f) Professional project at graduation				
J.C.T. Join up		Agree	Disagree	Neutral
		Count	Count	Count
	M & T Dept.	44	41	36
	M.T. Dept.	52	31	35
	E.T. Dept.	19	19	17
	C & A Dept.	15	13	16
(g) Family financial support				
J.C.T. Join up		Agree	Disagree	Neutral
		Count	Count	Count
	M & T Dept.	44	39	38
	M.T. Dept.	34	54	30
	E.T. Dept.	13	31	11
	C & A Dept.	16	15	13

Appendix B

Students' responses count *as per* seniority.

(a) J.C.T. evaluation system						
J.C.T. Join up		Totally agree	Mostly agree	Mostly disagree	Totally disagree	Neutral
		Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
	Term II+III.	34(67)	49(67)	37(45)	32(54)	31(49)
	Term IV+V.	17(33)	24(33)	46(55)	27(46)	40(51)
(b) High school G.P.A.						

J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
	<i>Term II+III.</i>	56(60)	53(62)	31(48)	23(40)	20(59)
	<i>Term IV+V.</i>	38(40)	33(38)	34(52)	34(60)	14(41)
(c) Training period						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
	<i>Term II+III.</i>	43	54	29	28	29
	<i>Term IV+V.</i>	32	50	30	26	16
(d) Trainee 'gut feel'						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
	<i>Term II+III.</i>	78	60	12	7	30
	<i>Term IV+V.</i>	71	38	14	4	23
(e) Scholarship						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
	<i>Term II+III.</i>	40(67)	29(64)	32(51)	20(34)	53(56)
	<i>Term IV+V.</i>	20(33)	22(36)	31(49)	39(66)	41(44)
(f) Professional project at graduation						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Term II+III.</i>	28	44	27	22	63
	<i>Term IV+V.</i>	24	33	28	26	43
(g) Family financial support						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
	<i>Term II+III.</i>	18(47)	44(64)	34(47)	26(40)	62(66)
	<i>Term IV+V.</i>	20(53)	25(36)	38(53)	39(60)	32(34)

Appendix C

Students' responses count as per living location.

(a) J.C.T. evaluation system						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Living inside Jeddah city</i>	42	58	70	46	55

	<i>Living outside Jeddah city</i>	9	14	15	14	14
(b) High school G.P.A.						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count (%)	Count (%)	Count (%)	Count (%)	Count (%)
	<i>Living inside Jeddah city</i>	89(91)	70(83)	52(83)	33(60)	27(75)
	<i>Living outside Jeddah city</i>	9(9)	14(17)	11(17)	22(40)	9(25)
(c) Training period						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Living inside Jeddah city</i>	65	77	52	39	39
	<i>Living outside Jeddah city</i>	12	25	8	15	5
(d) Trainee 'gut feel'						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Living inside Jeddah city</i>	122	80	18	10	40
	<i>Living outside Jeddah city</i>	29	18	8	2	9
(e) Scholarship						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Living inside Jeddah city</i>	47	52	54	43	75
	<i>Living outside Jeddah city</i>	11	11	11	15	18
(f) Professional Project at graduation						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Living inside Jeddah city</i>	37	64	44	39	88
	<i>Living outside Jeddah city</i>	13	16	11	10	16
(g) Family financial support						
J.C.T. Join up		<i>Totally agree</i>	<i>Mostly agree</i>	<i>Mostly disagree</i>	<i>Totally disagree</i>	<i>Neutral</i>
		Count	Count	Count	Count	Count
	<i>Living inside Jeddah city</i>	27	61	62	51	71
	<i>Living outside Jeddah city</i>	11	8	11	15	21

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